

**AMENDMENTS TO THE CLAIMS**

Please delete pending claims 1 – 27 and insert new claims 1 – 54.

New claim 1-27 are directed to various additives useful in diesel fuels and Claim 28 to 54 are directed to diesel fuels using the novel additives. Support for these claims can be found throughout the specification most notably paragraphs 0055 through 0086 and the examples.

Applicant wishes to point out that previously, diesel fuels using additives similar to those in original claims 1 – 27 were pending in a separate co-pending application, USSN 10/084,603, which was assigned to Examiner Medley. Applicant is now adding diesel fuel claims to this application.

The earlier diesel fuel claims stood rejected under 35 U.S.C. §§102(b) and 103 as unpatentable over the Jordan Patent, 5,826,369 which is the same reference cited by the Examiner in the present case. The Examiner also rejected some of the claims as indefinite under 35 U.S.C. §112. As demonstrated below, the new claims are free of the art and are in condition for allowances.

Claims previously submitted:

1. (Canceled) A diesel fuel additive for reducing a pollutant emission, the additive comprising: a plant oil extract; an antioxidant; and a thermal stabilizer.
2. (Canceled) The diesel fuel additive of claim 1, wherein the plant oil extract comprises an oil extract of a plant of the Leguminosae family.
3. (Canceled) The diesel fuel additive of claim 1, wherein the plant oil extract is selected from the group consisting of oil extract of vetch and oil extract of barley.
4. (Canceled) The diesel fuel additive of claim 1, wherein the plant oil extract comprises chlorophyll.

5. (Canceled) The diesel fuel additive of claim 1, wherein the antioxidant comprises .beta.-carotene.
6. (Canceled) The diesel fuel additive of claim 1, wherein the thermal stabilizer comprises jojoba oil.
7. (Canceled) The diesel fuel additive of claim 1, wherein the thermal stabilizer comprises an ester of a C20-C22 straight chain monounsaturated carboxylic acid.
8. (Canceled) The diesel fuel additive of claim 1, wherein the plant oil extract comprises oil extract of vetch, wherein the antioxidant comprises .beta.-carotene, and wherein the thermal stabilizer comprises jojoba oil.
9. (Canceled) The diesel fuel additive of claim 1, further comprising a diluent.
10. (Canceled) The diesel fuel additive of claim 9, wherein the diluent is selected from the group consisting of toluene, diesel fuel additive, diesel fuel, jet fuel, and mixtures thereof.
11. (Canceled) The diesel fuel additive of claim 1, further comprising an oxygenate.
12. (Canceled) The diesel fuel additive of claim 11, wherein the oxygenate is selected from the group consisting of methanol, ethanol, methyl tertiary butyl ether, ethyl tertiary butyl ether, and tertiary amyl methyl ether, and mixtures thereof.
13. (Canceled) The diesel fuel additive of claim 1, further comprising at least one additional additive selected from the group consisting of cetane improvers, detergents, corrosion inhibitors, metal deactivators, ignition accelerators, dispersants, anti-knock additives, anti-run-on additives, anti-pre-ignition additives, anti-misfire additives, antiwear additives, antioxidants, demulsifiers,

carrier fluids, solvents, fuel economy additives, emission reduction additives, lubricity improvers, and mixtures thereof.

14. (Canceled) The diesel fuel additive of claim 8, wherein a ratio of grams of plant oil extract of vetch to grams of .beta.-carotene in the additive is from about 8.1:1 to about 4.0:1, wherein a ratio of grams of oil extract of vetch to milliliters jojoba oil in the additive is from about 3.0:1 to about 2.0:1, and wherein a ratio of milliliters jojoba oil to grams of .beta.-carotene in the additive is from about 2.7:1 to about 1.7:1.
15. (Canceled) The diesel fuel additive of claim 8, wherein a ratio of grams of plant oil extract of vetch to grams of .beta.-carotene in the additive is from about 8.1:1 to about 4.8:1, wherein a ratio of grams of oil extract of vetch to milliliters jojoba oil in the additive is from about 3.0:1 to about 2.4:1, and wherein a ratio of milliliters jojoba oil to grams of .beta.-carotene in the additive is from about 2.7:1 to about 2.0:1.
16. (Canceled) The diesel fuel additive of claim 8, wherein a ratio of grams of plant oil extract of vetch to grams of .beta.-carotene in the additive is about 8.1:1, wherein a ratio of grams of oil extract of vetch to milliliters jojoba oil in the additive is about 3.0:1, and wherein a ratio of milliliters jojoba oil to grams of .beta.-carotene in the additive is about 2.7:1.
17. (Canceled) The diesel fuel additive of claim 8, wherein a ratio of grams of plant oil extract of vetch to grams of .beta.-carotene in the additive is about 6.1:1, wherein a ratio of grams of oil extract of vetch to milliliters jojoba oil in the additive is about 2.7:1, and wherein a ratio of milliliters jojoba oil to grams of .beta.-carotene in the additive is about 2.3:1.
18. (Canceled) The diesel fuel additive of claim 8, wherein a ratio of grams of plant oil extract of vetch to grams of .beta.-carotene in

the additive is about 4.8:1, wherein a ratio of grams of oil extract of vetch to milliliters jojoba oil in the additive is about 2.4:1, and wherein a ratio of milliliters jojoba oil to grams of .beta.-carotene in the additive is about 2.0:1.

19. (Canceled) The diesel fuel additive of claim 8, wherein a ratio of grams of plant oil extract of vetch to grams of p-carotene in the additive is from about 6.1:1 to about 4.0:1, wherein a ratio of grams of oil extract of vetch to milliliters jojoba oil in the additive is from about 2.7:1 to about 2.2:1, and wherein a ratio of milliliters jojoba oil to grams of .beta.-carotene in the additive is from about 2.3:1 to about 1.8:1.
20. (Canceled) The diesel fuel additive of claim 8, wherein a ratio of grams of plant oil extract of vetch to grams of .beta.-carotene in the additive is about 4.8:1, wherein a ratio of grams of oil extract of vetch to milliliters jojoba oil in the additive is about 2.4:1, and wherein a ratio of milliliters jojoba oil to grams of .beta.-carotene in the additive is about 2.0:1.
21. (Canceled) The diesel fuel additive of claim 8, wherein a ratio of grams of plant oil extract of vetch to grams of .beta.-carotene in the additive is about 6.1:1, wherein a ratio of grams of oil extract of vetch to milliliters jojoba oil in the additive is about 2.7:1, and wherein a ratio of milliliters jojoba oil to grams of .beta.-carotene in the additive is about 2.3:1.
22. (Canceled) The diesel fuel additive of claim 8, wherein a ratio of grams of plant oil extract of vetch to grams of .beta.-carotene in the additive is about 4.0:1, wherein a ratio of grams of oil extract of vetch to milliliters jojoba oil in the additive is about 2.2:1, and wherein a ratio of milliliters jojoba oil to grams of .beta.-carotene in the additive is about 1.8:1.

23. (Canceled) The diesel fuel additive of claim 8, wherein the additive comprises a first component and a second component, wherein the first component comprises jojoba oil and .beta.-carotene, and wherein the second component comprises jojoba oil and oil extract of vetch.
24. (Canceled) The diesel fuel additive of claim 8, wherein the additive comprises a first component and a second component, wherein the first component comprises about 4 ml jojoba oil per 3785 ml of the first component and about 4 g .beta.-carotene per 3785 ml of the first component, and wherein the second component comprises from about 4 ml jojoba oil per 3785 ml of the second component and about 19.36 g oil extract of vetch per 3785 ml of the second component.
25. (Canceled) The diesel fuel additive of claim 8, wherein the additive comprises a first component and a second component, wherein the first component comprises about 32 ml jojoba oil per 3785 ml of the first component and about 32 g .beta.-carotene per 3785 ml of the first component, and wherein the second component comprises from about 32 ml jojoba oil per 3785 ml of the second component and about 155 g oil extract of vetch per 3785 ml of the second component.
26. (Canceled) The diesel fuel additive of claim 1, wherein the additive comprises a reformulated diesel fuel additive.
27. (Canceled) The diesel fuel additive of claim 1, wherein the diesel fuel additive is a No. 2 low sulfur diesel fuel additive.

New Claims added:

1. (New) A diesel fuel additive comprising  
  
a plant oil extract derived from grain;  
  
a carotenoid; and  
  
a thermal stabilizer.
2. (New) The additive of claim 1, wherein the grain is selected from the group consisting of fescue, clover, wheat, barley, oats, rye, sorghum, flax, triticale, rice, corn, spelt, millet, amaranth, buckwheat, quinoa, kamut and teff.
3. (New) The additive of claim 1 wherein the carotenoid is selected from the group consisting of  $\beta$ -carotene,  $\alpha$ -carotene, lycopene, leutin, betatene and mixtures thereof.
4. (New) The additive of claim 1, wherein the thermal stabilizer is selected from the group consisting of vegetable oils, nut oils, animal oils and mixtures thereof
5. (New) The additive of claim 1 wherein the plant oil extract is derived from barley and the carotenoid is  $\beta$ -carotene.
6. (New) The additive of claim 1 wherein the thermal stabilizer is meadowfoam oil.
7. (New) The additive of claim 1 further comprising a diluent.
8. (New) The additive of claim 7 wherein the diluent is selected from the group consisting of toluene, benzene, o-xylene, m-xylene, p-xylene, cyclohexanes, hexane, octanes, nonanes, diesel fuel, jet fuel, gasoline, 2 cycle oil, resid fuel and mixtures thereof.

9. (New) The additive of claim 1 further comprising at least one additive selected from the group selected from octane improvers, cetane improvers, detergents, corrosion inhibitors, metal deactivators, ignition accelerators, dispersants, anti-knock additives, anti-run-on additives, anti-pre-ignition additives, anti-misfire additives, anti-wear additives, antioxidants, demulsifiers, carrier fluids, solvents, fuel economy additives, emission reduction additives, lubricity improvers, oxygenates and mixtures thereof.
10. (New) A diesel fuel additive comprising:
  - a hydrophobic plant oil extract;
  - a carotenoid; and
  - a thermal stabilizer selected from the group consisting of peanut oil, cottonseed oil, rape seed oil, macadamia oil, avocado oil, palm oil, palm kernel oil, meadowfoam oil, castor oil and mixtures thereof.
11. (New) The additive of claim 10 wherein the plant oil extract is derived from a member of the Leguminosae family.
12. (New) The additive of claim 10 wherein the plant oil extract is derived from grain.
13. (New) The additive of claim 10 further comprising a diluent.
14. (New) The additive of claim 13 wherein the diluent is selected from the group consisting of toluene, benzene, o-xylene, m-xylene, p-xylene, cyclohexanes, hexane, octanes, nonanes, diesel fuel, jet fuel, gasoline, 2 cycle oil, resid fuel and mixtures thereof.
15. (New) The additive of claim 10 further comprising at least one additive selected from the group selected from octane improvers, cetane improvers, detergents, corrosion inhibitors, metal deactivators, ignition accelerators, dispersants, anti-knock

additives, anti-run-on additives, anti-pre-ignition additives, anti-misfire additives, anti-wear additives, antioxidants, demulsifiers, carrier fluids, solvents, fuel economy additives, emission reduction additives, lubricity improvers, oxygenates and mixtures thereof.

16. (New) The additive of claim 10, wherein the carotenoid is selected from the group consisting of  $\beta$ -carotene,  $\alpha$ -carotene, lycopene, leutin, betatene and mixtures thereof.
17. (New) The additive of claim 10 wherein the plant oil extract is barley oil extract, and the carotenoid is  $\beta$ -carotene.
18. (New) The additive of claim 10 further comprising meadowfoam oil.
19. (New) A diesel fuel additive comprising;

a plant oil extract selected from the group consisting of hops oil extract, fescue oil extract, barley oil extract, green clover oil extract, wheat oil extract and mixtures thereof;

a carotenoid; and

a thermal stabilizer.

20. (New) The additive of claim 19 wherein the carotenoid is selected from the group consisting of  $\beta$ -carotene,  $\alpha$ -carotene, lycopene, leutin, betatene and mixtures thereof.
21. (New) The additive of claim 19, wherein the thermal stabilizer is selected from the group consisting of vegetable oils, nut oils, animal oils and mixtures thereof
22. (New) The additive of claim 19 wherein the plant oil extract is derived from barley and the carotenoid is  $\beta$ -carotene.
23. (New) The additive of claim 19 wherein the thermal stabilizer is meadowfoam oil.



24. (New) The additive of claim 19 further comprising a diluent.
25. (New) The additive of claim 24 wherein the diluent is selected from the group consisting of toluene, benzene, o-xylene, m-xylene, p-xylene, cyclohexanes, hexane, octanes, nonanes, diesel fuel, jet fuel, gasoline, 2 cycle oil, resid fuel and mixtures thereof.
26. (New) The additive of claim 19 further comprising at least one additive selected from the group selected from octane improvers, cetane improvers, detergents, corrosion inhibitors, metal deactivators, ignition accelerators, dispersants, anti-knock additives, anti-run-on additives, anti-pre-ignition additives, anti-misfire additives, anti-wear additives, antioxidants, demulsifiers, carrier fluids, solvents, fuel economy additives, emission reduction additives, lubricity improvers, oxygenates and mixtures thereof.
27. (New) The additive of claim 19 wherein the plant oil extract is barley oil extract, and the carotenoid is  $\beta$ -carotene.
28. (New) A diesel fuel comprising a base fuel and at least one addition wherein the additive comprises:
  - a plant oil extract derived from grain;
  - a carotenoid; and
  - a thermal stabilizer.
29. (New) The diesel fuel of claim 28, wherein the grain is selected from the group consisting of fescue, clover, wheat, barley, oats, rye, sorghum, flax, triticale, rice, corn, spelt, millet, amaranth, buckwheat, quinoa, kamut and teff.
30. (New) The diesel fuel of claim 28 wherein the carotenoid is selected from the group consisting of  $\beta$ -carotene,  $\alpha$ -carotene, lycopene, leutin, betatene and mixtures thereof.

31. (New) The diesel fuel of claim 28, wherein the thermal stabilizer is selected from the group consisting of vegetable oils, nut oils, animal oils and mixtures thereof.
32. (New) The diesel fuel of claim 28 wherein the plant oil extract is derived from barley and the carotenoid is  $\beta$ -carotene.
33. (New) The diesel fuel of claim 28 wherein the thermal stabilizer is meadowfoam oil.
34. (New) The diesel fuel of claim 28 further comprising a diluent.
35. (New) The diesel fuel of claim 34 wherein the diluent is selected from the group consisting of toluene, benzene, o-xylene, m-xylene, p-xylene, cyclohexanes, hexane, octanes, nonanes, diesel fuel, jet fuel, gasoline, 2 cycle oil and resid fuel and mixtures thereof.
36. (New) The diesel fuel of claim 28 further comprising at least one additive selected from the group selected from octane improvers, cetane improvers, detergents, corrosion inhibitors, metal deactivators, ignition accelerators, dispersants, anti-knock additives, anti-run-on additives, anti-pre-ignition additives, anti-misfire additives, anti-wear additives, antioxidants, demulsifiers, carrier fluids, solvents, fuel economy additives, emission reduction additives, lubricity improvers, oxygenates and mixtures thereof.
37. (New) The diesel fuel of claim 28 wherein the plant oil extract is barley oil extract, the carotenoid is  $\beta$ -carotene.
38. (New) A diesel fuel comprising a base fuel and at least one addition wherein the additive comprises:
  - a hydrophobic plant oil extract;
  - a carotenoid; and

a thermal stabilizer selected from the group consisting of peanut oil, cottonseed oil, rape seed oil, macadamia oil, avocado oil, palm oil, palm kernel oil, meadowfoam oil, castor oil and mixtures thereof.

39. (New) The diesel fuel of claim 38 wherein the plant oil extract is derived from a member of the Leguminosae family.
40. (New) The diesel fuel of claim 38 wherein the plant oil extract is derived from grain.
41. (New) The diesel fuel of claim 38 further comprising a diluent.
42. (New) The diesel fuel of claim 41 wherein the diluent is selected from the group consisting of toluene, benzene, o-xylene, m-xylene, p-xylene, cyclohexanes, hexane, octanes, nonanes, diesel fuel, jet fuel, gasoline, 2 cycle oil and resid fuel and mixtures thereof.
43. (New) The diesel fuel of claim 38 further comprising at least one additive selected from the group selected from octane improvers, cetane improvers, detergents, corrosion inhibitors, metal deactivators, ignition accelerators, dispersants, anti-knock additives, anti-run-on additives, anti-pre-ignition additives, anti-misfire additives, anti-wear additives, antioxidants, demulsifiers, carrier fluids, solvents, fuel economy additives, emission reduction additives, lubricity improvers, oxygenates and mixtures thereof.
44. (New) The diesel fuel of claim 38, wherein the carotenoid is selected from the group consisting of  $\beta$ -carotene,  $\alpha$ -carotene, lycopene, leutin, betatene and mixtures thereof.
45. (New) The diesel fuel of claim 38 wherein the plant oil extract is barley oil extract, the carotenoid is  $\beta$ -carotene.
46. (New) A diesel fuel comprising a base feed and at least one addition wherein the additive comprises:

a plant oil extract selected from the group consisting of hops oil extract, fescue oil extract, barley oil extract, green clover oil extract, wheat oil extract and mixtures thereof;

a carotenoid; and

a thermal stabilizer.

47. (New) The diesel fuel of claim 46 wherein the carotenoid is selected from the group consisting of  $\beta$ -carotene,  $\alpha$ -carotene, lycopene, leutin, betatene and mixtures thereof.
48. (New) The diesel fuel of claim 46, wherein the thermal stabilizer is selected from the group consisting of vegetable oils, nut oils, animal oils and mixtures thereof
49. (New) The diesel fuel of claim 46 wherein the plant oil extract is derived from barley and the carotenoid is  $\beta$ -carotene.
50. (New) The diesel fuel of claim 46 wherein the thermal stabilizer is meadowfoam oil.
51. (New) The diesel fuel of claim 46 further comprising a diluent.
52. (New) The diesel fuel of claim 46 wherein the diluent is selected from the group consisting of toluene, benzene, o-xylene, m-xylene, p-xylene, cyclohexanes, hexane, octanes, nonanes, diesel fuel, jet fuel, gasoline, 2 cycle oil and resid fuel and mixtures thereof.
53. (New) The diesel fuel of claim 52 further comprising at least one additive selected from the group selected from octane improvers, cetane improvers, detergents, corrosion inhibitors, metal deactivators, ignition accelerators, dispersants, anti-knock additives, anti-run-on additives, anti-pre-ignition additives, anti-misfire additives, anti-wear additives, antioxidants, demulsifiers, carrier fluids, solvents, fuel economy additives, emission reduction additives, lubricity improvers, oxygenates and mixtures thereof.

54. (New) The diesel fuel of claim 46 wherein the plant oil extract is barley oil extract, the carotenoid is  $\beta$ -carotene.